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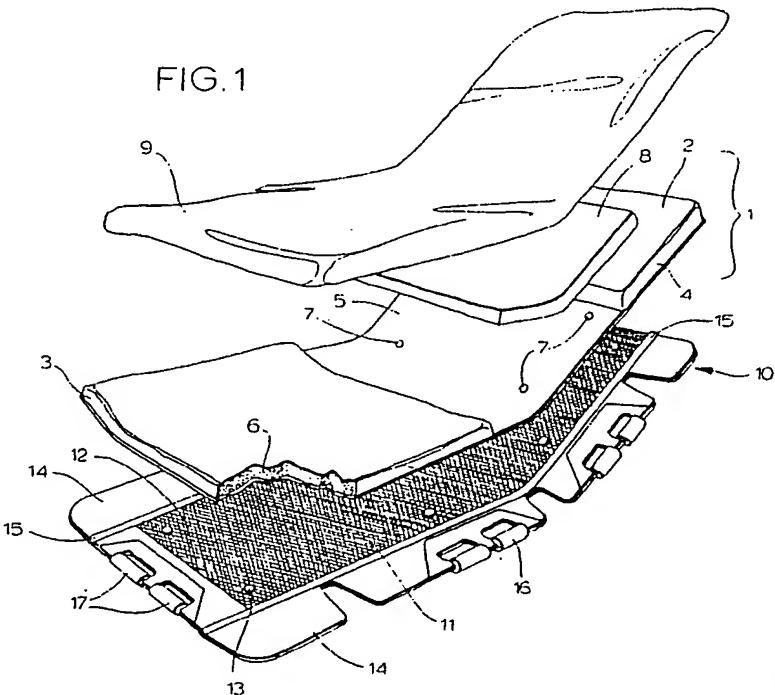
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(54) Sleeping surfaces and patient transfer device

(57) The present specification discloses a sleeping surface assembly (1) and a patient transfer device (10) useful for transferring patients from one support to another. The sleeping surface assembly (1) comprises first and second unitary flexible sections (2, 8), the first section (2) having head and foot portions (3, 4) having a depth greater than the central portion (5) thereof. The second section (8) is constructed of a material which permits gas flow therethrough and liquid flow downward from the upper surface thereof and fits into the area above the central portion (5) of the first section (2) to form a sleeping surface having a uniform depth. The patient transfer device (10) comprises a rectangular plastic centre section (11) having a plurality of apertures (12) therein rendering the centre section (11) stretchable in at least one direction and having a low-friction lower surface. At least one laterally extending section (14) is movably attached to one of the longer sides of the centre section (11) and is capable of movement relative to the centre section (11). Means (16) for gripping the transfer device (10) to impart motion thereto are provided on said laterally extending sections (14).



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FIG. 1

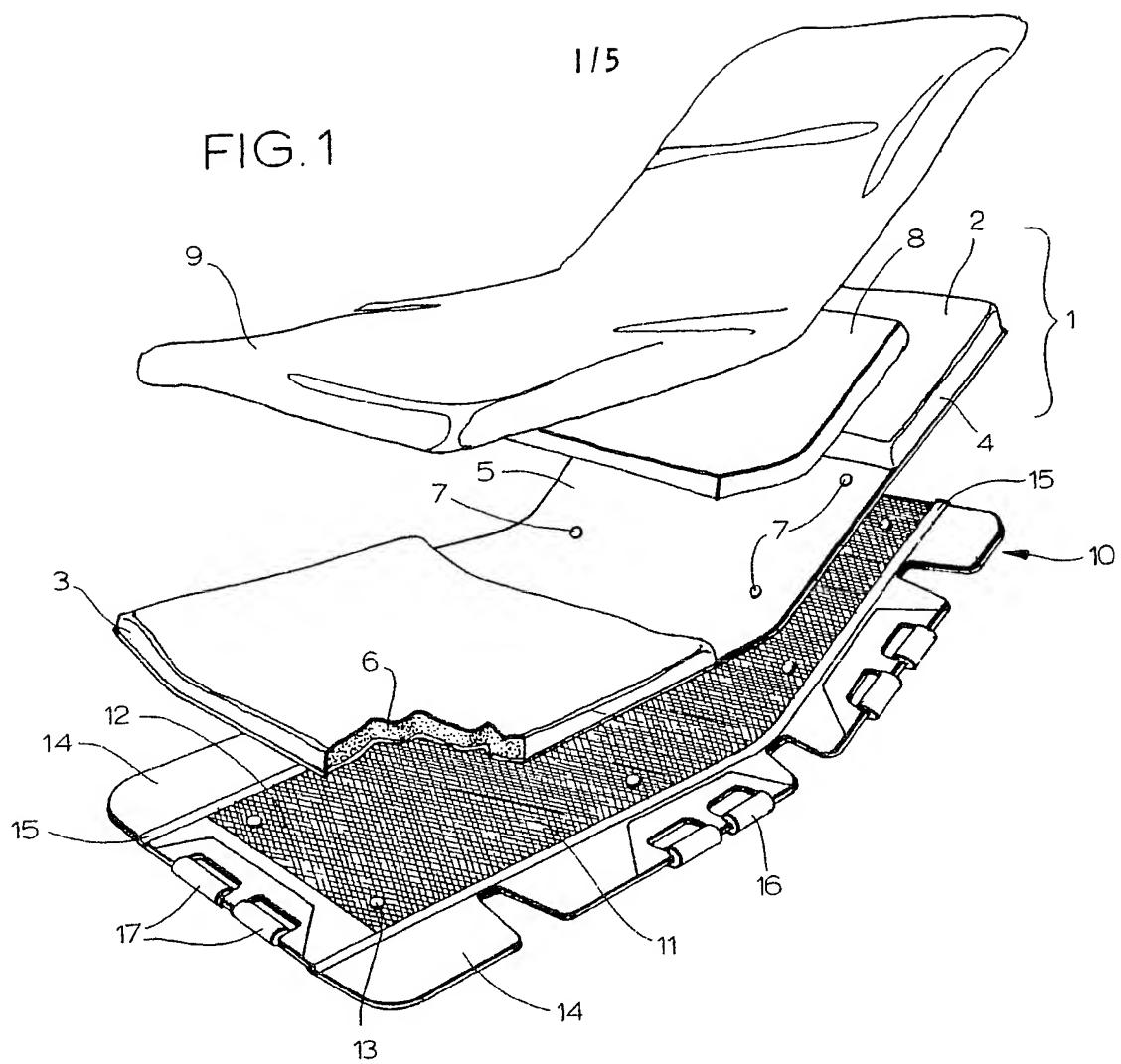
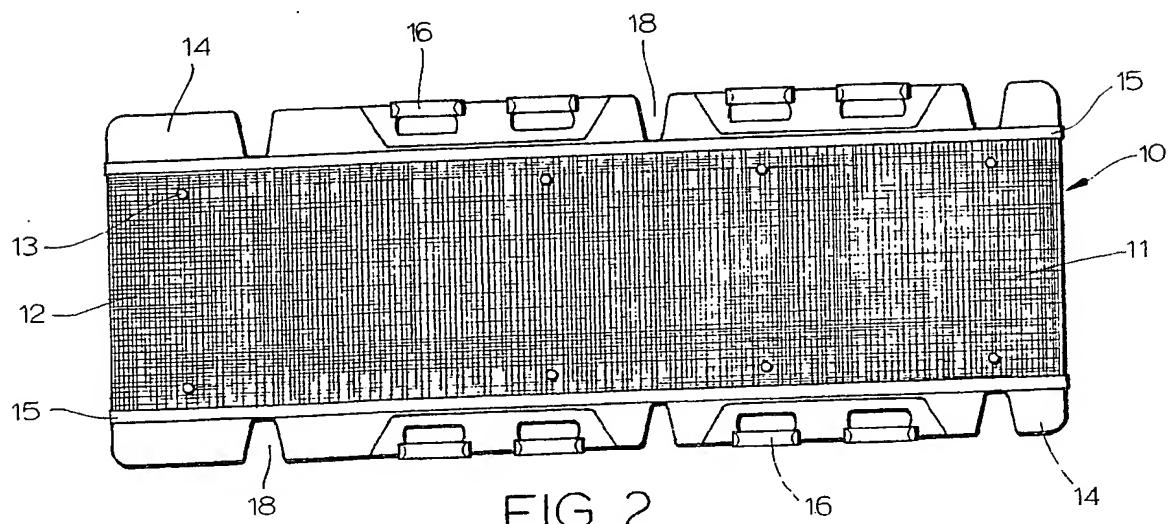
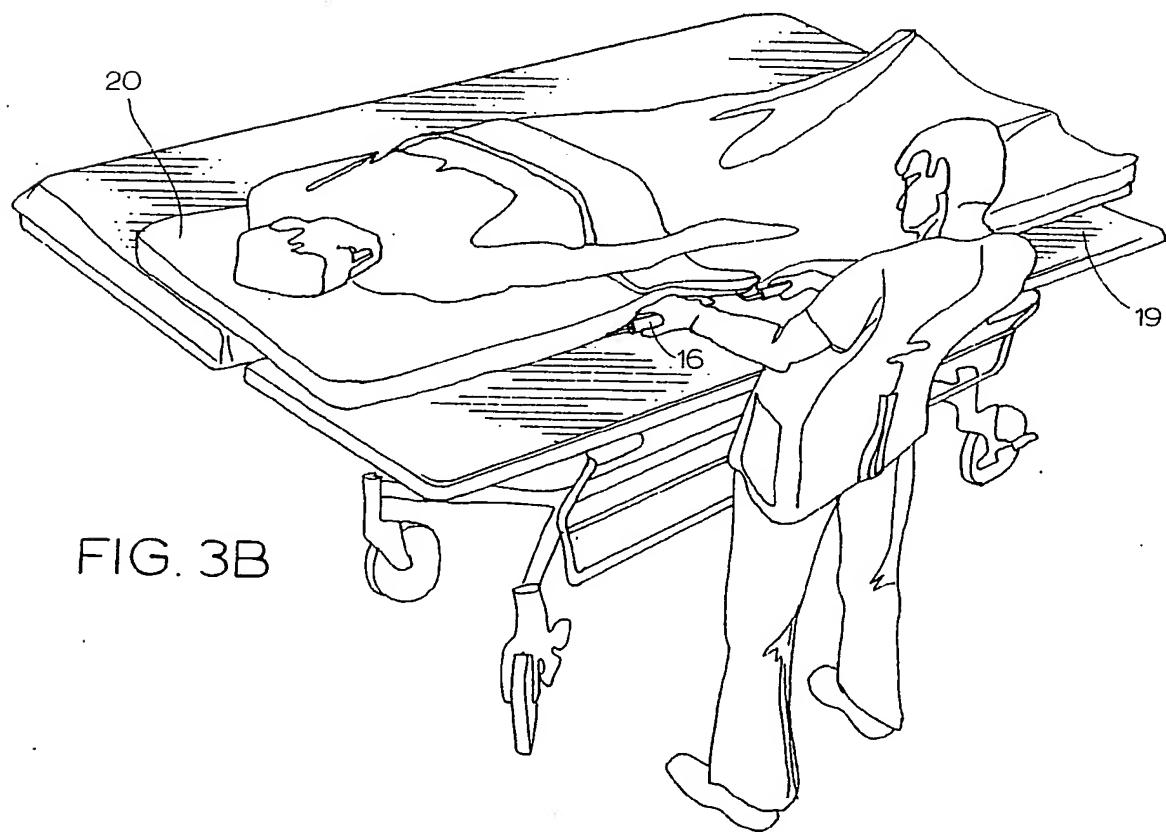
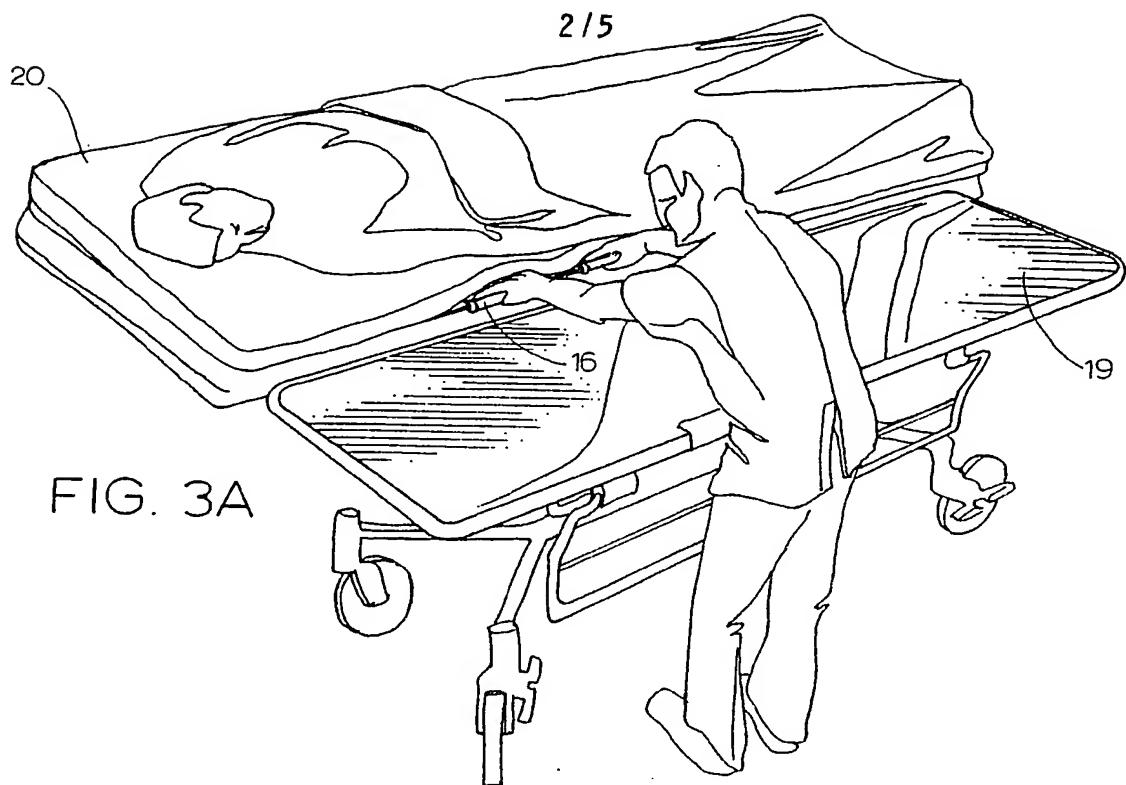


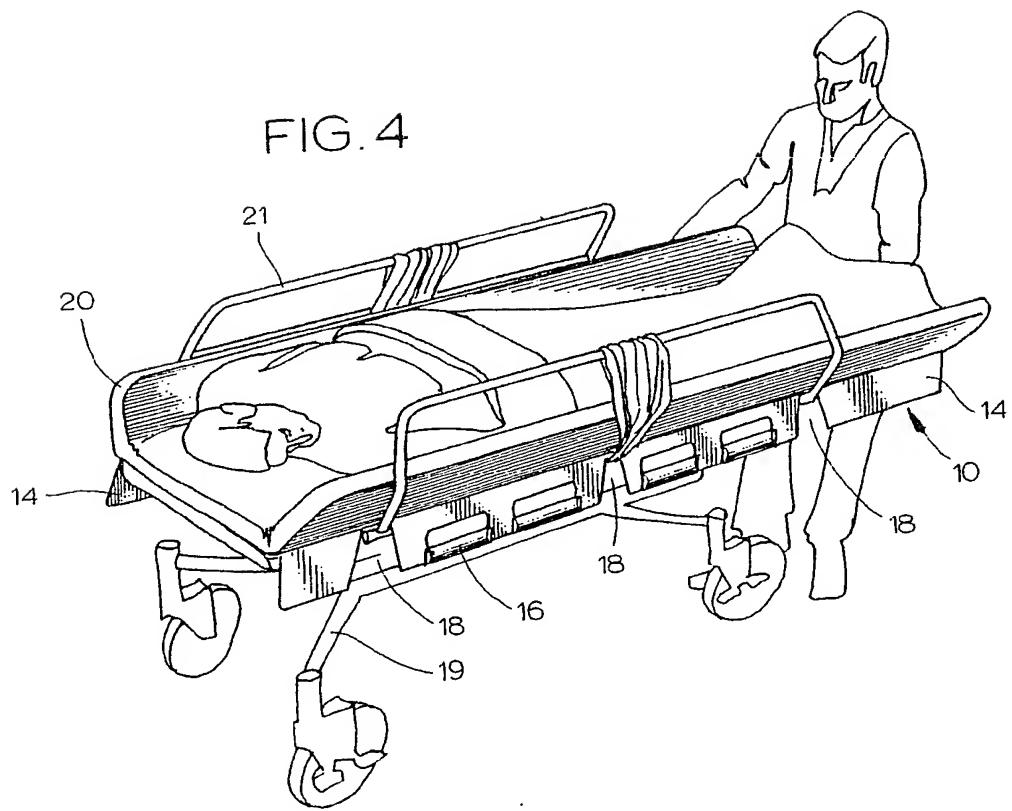
FIG. 2



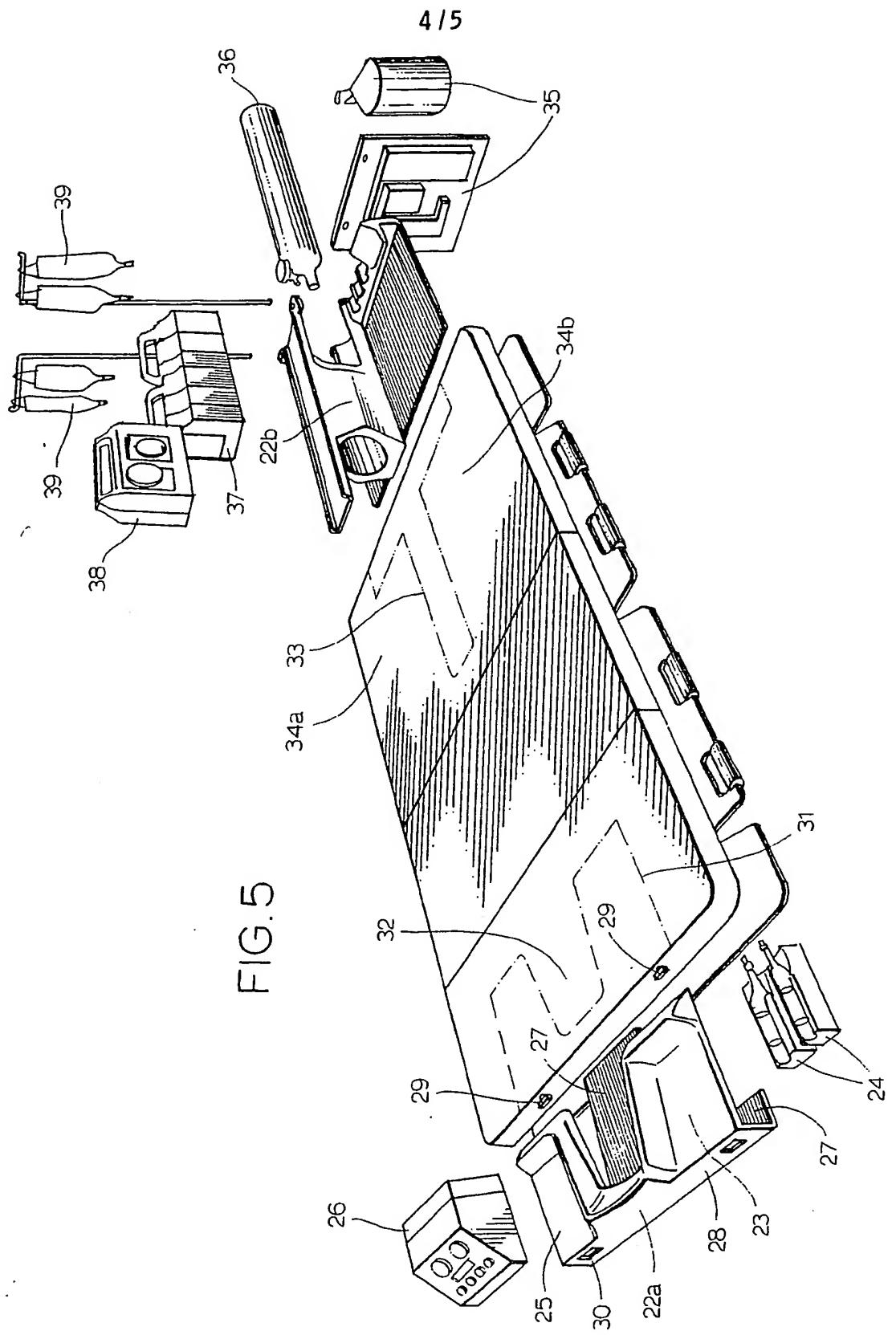


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FIG. 4



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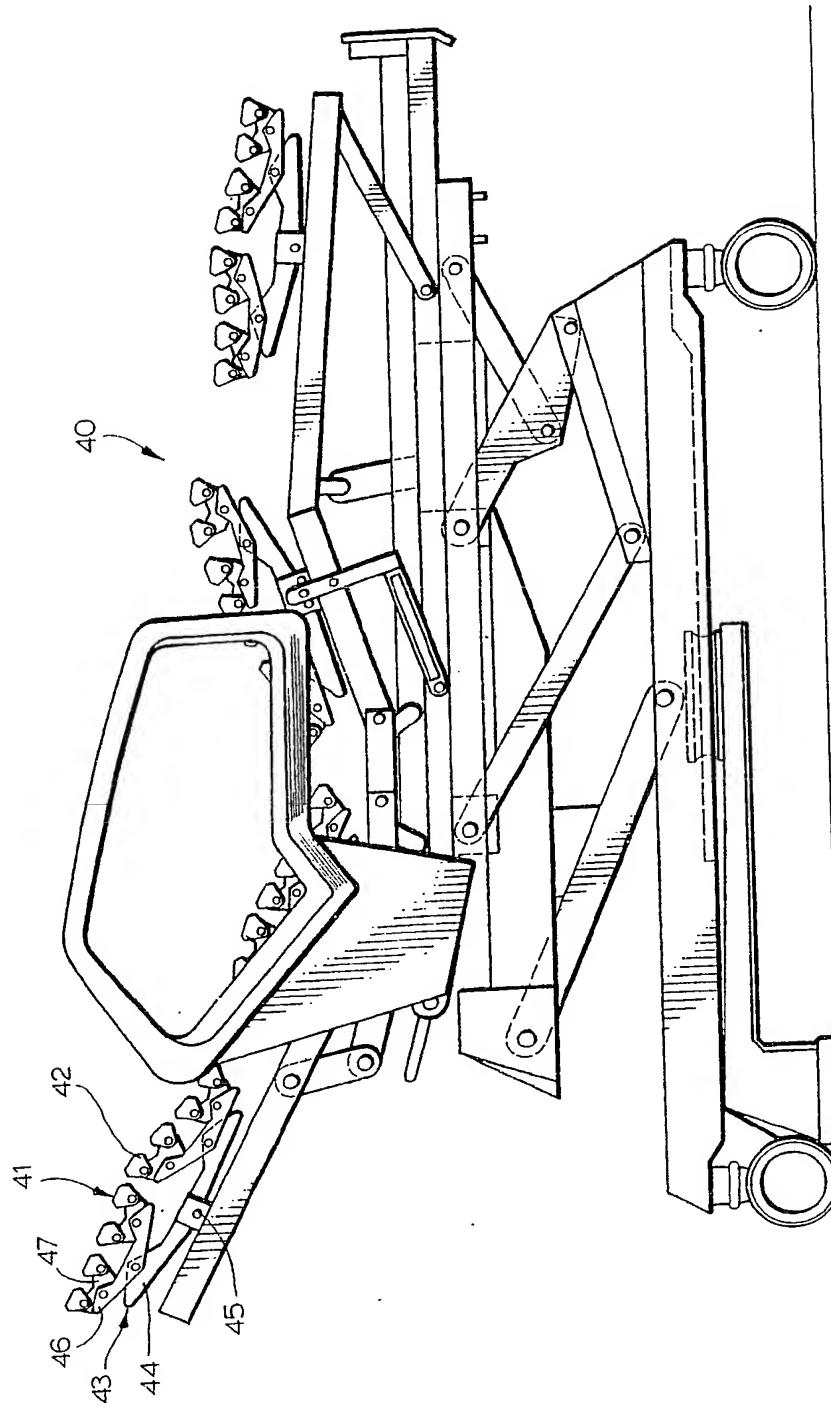


FIG. 6

SPECIFICATION**Improvements Relating to Sleeping Surfaces and Patient Transfer Device**

The present invention relates to a sleeping surface assembly and a patient transfer device for use in hospital environments.

Upon entry into a hospital or other patient care environment, patients are generally subjected to a variety of transfer procedures from one surface or 10 patient support to another. Since the majority of time generally spent in such environments is in a hospital bed, transfers are often made to or from beds upon which patients spend extended periods of time. A typical patient arriving at a hospital may 15 initially be transferred onto a wheeled stretcher and subsequently, to a hospital bed. Subsequent transfers may later be required to and from X-ray surfaces, operating tables, weighing scales, patient examination surfaces and other hospital supports. 20 These transfers often involve movement from a surface of one width to a surface of another width, e.g., from a stretcher to a hospital bed in a medical surgical unit.

Transfer of patients in hospital and patient care 25 environments requires substantial time and effort, and generally necessitates the use of two or more hospital personnel who are diverted from their normal duties and responsibilities for significant periods of time. Transfer of patients requiring 30 continued access to life support devices often requires that these devices be transferred along with the patient, and such transfers can be complicated and cumbersome.

Both patients and hospital personnel may be 35 subjected to undesirable movements which may cause injury or, in the case of the patient, undue disturbance or discomfort. Continued insertion and removal of a temporary transfer surface increases patient pain and discomfort levels.

40 Frequent transfer of patients to commonly used surfaces or patient supports also increases the risk of cross-infection (loss of sepsis control) and increases hospital housekeeping requirements, e.g., by requiring more frequent patient bed linen 45 changes.

It is, therefore, an object of the present invention to facilitate the transfers to which a hospital patient is subjected.

Another object of the present invention is to 50 provide a sleeping surface assembly which is lightweight yet comfortable and which can be readily transferred from one patient support to another.

Yet another object of the present invention is to 55 provide a patient transfer device which can be employed by a single hospital staff member to transfer a patient from one patient support to another.

Another object of the present invention is to 60 provide a combination sleeping surface assembly and patient transfer device which can be readily transferred from one patient support to another, and to and from patient supports having different widths.

65 A further object of the present invention is to provide a combination sleeping surface assembly and patient transfer device which can be equipped with patient life support devices and which can be readily transferred with such life support devices 70 attached.

Another object of the present invention is to provide a single sleeping surface assembly which can be assigned to a single patient upon entry to a hospital or another patient care environment and 75 which can travel with the patient through the entire stay in the environment.

According to the present invention there is provided a sleeping surface assembly, capable of being readily transferred from one patient support 80 to another. The sleeping surface assembly is constructed of materials sufficiently lightweight enough to permit ready transfer and has two unitary flexible sections adapted to form a surface having a generally uniform depth and rectangular top and 85 bottom surfaces. The first section comprises a head portion, a foot portion and a central portion. The head and foot portions have a depth substantially greater than the depth of the central portion. The second section is constructed of a material capable 90 of permitting gas flow therethrough and capable of permitting liquids on the upper surface thereof to pass downwardly. The second section is designed to fit above and adjacent to the central portion of the first section and is readily removable therefrom for 95 replacement, cleaning and the like. When the second section is placed in the central portion of the first section, the sleeping surface assembly has a generally uniform depth throughout.

The first and second sections of the sleeping 100 surface assembly may be attached to each other in a fashion so that the second section may be readily removed from the first section.

The sleeping surface assembly may be covered 105 with appropriate patient bed linens for use in a hospital or other patient care environment.

According to a further feature of the present invention there is provided a patient transfer device capable of readily moving a patient from one surface or support to another. The transfer device is 110 generally rectangular. It is constructed of a generally rectangular plastic centre section. The centre section has an upper sleeping surface or patient-receiving surface and a generally parallel lower surface and adapted to adjoin a patient support. The 115 lower surface has low-friction characteristics which permit ready movement of the device from one patient support to another. The centre section has a plurality of apertures therein and preferably consists, at least in part, of, e.g., a plastic webbing 120 which is stretchable in at least one, and preferably two, directions.

Adjacent to one of the longer edges of the centre section is at least one, and preferably two, laterally extending sections which are movably attached 125 thereto.

Gripping means are provided for imparting movement to the transfer device.

The laterally extending sections of the transfer device may be provided with indented portions

designed to pass around protrusions in patient supports when the extending sections are moved relative to the centre section.

Handles may be attached to the transfer device or made integral to it. Handles may also be placed on one or more end portions of the central or extending sections.

The transfer device is capable of being used in combination with a readily movable sleeping surface placed thereon or attached thereto.

Preferably, the transfer device is used in combination with the sleeping surface assembly described hereabove. In this manner, it is possible to provide a lightweight yet comfortable sleeping surface assembly which can be assigned to a single patient for an entire hospital stay.

Life support devices may be located adjacent to the patient by securing or mounting the same directly to the sleeping surface assembly or transfer device or to mounting modules secured to the sleeping surface assembly, transfer device, or combination thereof.

The present invention will now be further described, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is an exploded perspective view of a sleeping surface assembly and a patient transfer device, constructed according to the present invention;

Figure 2 is a top view of a patient transfer device constructed according to the present invention;

Figures 3A and 3B are perspective views of a combination sleeping surface assembly and patient transfer device being employed according to the

present invention to transfer a patient from a patient support to a wheeled stretcher;

Figure 4 is a perspective view of the sleeping surface assembly and patient transfer device of the present invention employed on a wheeled stretcher;

Figure 5 is an exploded perspective view of the sleeping surface assembly and patient transfer device according to the present invention, in combination with a variety of life support devices adapted to be mounted on the said sleeping surface assembly; and

Figure 6 is a side elevational view of a hospital bed which may be employed in connection with the sleeping surface assembly and patient transfer device of the present invention.

A sleeping surface assembly and patient transfer device constructed according to the present invention are depicted in Figures 1 and 3A to 5, in combination in various aspects of use. Figure 2 depicts the patient transfer device alone, and Figure

6 depicts a unique bed upon which the sleeping surface assembly and transfer device may be employed.

Referring to Figure 1, the sleeping surface assembly of the present invention is generally depicted by reference numeral 1. The assembly comprises a first unitary flexible section 2. The first section has three portions, namely head portion 3, foot portion 4 and central portion 5. Section 2 has a generally horizontal flexible bottom surface adapted to be placed over and adjacent to a patient support

such as a bed, stretcher or examination table.

The head portion 3 and foot portion 4 of the first sleeping section 2 have a depth substantially greater than the depth of central portion 5. Typically, the depth of head portion 3 and foot portion 4 will be about 2 inches, but said depth can vary depending on the particular materials of construction employed and the particular end use to which the sleeping surface assembly is to be put.

The first section 2 of the sleeping surface may be constructed of a variety of materials normally employed in sleeping surface or mattress construction. Preferably, the outer cladding of section 2 comprises a flexible plastic material, such as vinyl, nylon or urethane. Most preferably, the outer cladding of section 2 is an opaque vinyl material. The inner padding 6 of the first sleeping surface section 2 can comprise any suitable material which will provide some level of comfort and support to a patient placed on the sleeping surface. Preferably the inner padding 6 is foam, and most preferably is urethane foam.

The central portion 5 of section 2 is of a depth substantially less than the depth of head section 3 or foot section 4. Preferably, central section 5 is constructed of the same material as the cladding employed on head section 3 and foot section 4. Also, the central portion 5 is preferably contiguous to and an integral part of the bottom cladding of the head and foot sections 3 and 4. Alternatively, the central portion 5 may contain some padding or other material. Preferably the upper surface of central portion 5 and the adjacent vertical surface of head portion 3 and foot portion 4 are liquid impervious.

Central portion 5 may be equipped with fastening means 7 for securing the second section 8 of sleeping surface assembly 1 in a position above and adjacent to central portion 5 of the first section 2 of sleeping surface assembly 1. Fastening means 7 are preferably in the form of snaps or grommets which are constructed to co-operate with and engage in a fastening manner a complementary snap or grommet (not shown) attached to the lower surface of said second section 8 of sleeping surface assembly 1. Such fastening means (not shown) are also attached to and protrude downwards from the bottom cladding of first section 2 of sleeping surface 1 for engagement with complementary fastening means 13 on transfer device 10.

Fastening means 7 could alternatively take the form of any suitable means, e.g. a Velcro (Registered Trade Mark) fastening strip.

Second section 8 of the sleeping surface assembly 1 is a unitary flexible section constructed to co-operate in fitting engagement with first section 2 to provide a sleeping surface 1 having a generally uniform depth. Second section 8 generally has the same shape (i.e., has the same perimeter) as central portion 5 of first section 2. Preferably, second section 8 is square or rectangular in shape and extends the entire width of sleeping surface assembly 1. Second section 2 and central portion 5 of first section 1, have a combined depth which is generally the same as the depth of head portion 3

and foot portion 4 of first section 2. It is understood that, while the depth of sleeping surface assembly 1 is generally uniform, variations in the thickness of any portion of sleeping surface assembly 1 are contemplated to accommodate portions of the body or any other custom modifications to sleeping surface assembly 1.

Second section 8 of sleeping surface assembly 1 is constructed of flexible material. This material is capable of permitting gases to flow through second section 8 to and from the upper surface thereof. The material is also capable of permitting liquids on the upper surface of section 8 to pass in a generally downward direction toward the bottom surface of section 8. Generally such liquids will collect in the area of the lower surface of second section 8 and the upper surface of the central portion 5 of first section 2, where the liquids may be readily cleaned or removed. Second section 8 is preferably constructed of foam, and most preferably of a reticulated, open-celled polyurethane foam which is washable and recyclable. The ability of this material to breathe (i.e., permit gases to flow through the material to and from the upper surface thereof) and to wick away liquids (i.e., permit liquids to pass in a generally downward direction toward the bottom surface of the material) aids in reducing the risk of decubitus infection (bed sores) and other detrimental conditions which could arise when a patient is placed on a conventional plastic-clad sleeping surface for an extended period of time.

Alternatively, the material of which second section 8 is constructed could be a disposable material.

Sleeping surface assembly 1 may be provided with any suitable patient bed linens appropriate for the condition of the patient. In Figure 1, fitted (contoured) sheet 9 is shown above sleeping surface assembly 1. It is contemplated that fitted sheet 9 will be placed in a position covering the upper and side surfaces of sleeping surface assembly 1 after second section 8 is put in place. Fitted sheet 9 also wraps around to cover an exterior perimeter portion of the bottom surface of sleeping surface 1. Fitted sheet 9 is held in place, e.g., by an elastic ribbon (not shown) sewn into sheet 9. It is contemplated that sleeping surface assembly 1 may be of any convenient length and width dimension. Typically, sleeping surface assembly 1 will have a width compatible with a typical hospital bed, e.g., a width of about thirty-six inches (36"). It is also contemplated that sleeping surface assembly 1 may have gripping means, e.g., handles (not shown) integral or attached thereto.

In modern electric and hand-operated hospital beds, the bed frame surface typically may be positioned in other than a linear orientation. For example, the bed frame surface may have a head portion or foot portion which may be raised or lowered relative to the horizontal. Alternatively, the bed frame surface may be placed in a contour position wherein portions of the bed frame surface are in a variety of orientations relative to the horizontal. With typical hospital bed mattresses, movement of the bed frame surface out of a linear

orientation will result in bunching or compression of the mattress causing additional discomfort to the patient, particularly where the patient remains in the position for an extended period of time. The

70 sleeping surface assembly of the present invention results in less bunching or compression and thus provides additional patient comfort.

It is envisioned that the sleeping surface assembly of the present invention may be employed alone or

75 in combination with the transfer device of the present invention. When employed alone, it is contemplated that the sleeping surface assembly of the present invention may be used to replace a standard mattress or a typical home bed. When so used, the sleeping surface assembly of the present invention permits the typical mattress (generally about five inches (5") thick) to be placed with a substantially thinner (e.g., about three inches (3") thick) mattress while permitting enhanced mobility 80 of and access to the upper sleeping surface and providing enhanced comfort to the user.

Again referring to Figure 1, the patient transfer device of the present invention is generally depicted by reference numeral 10. The device comprises a

90 generally rectangular plastic centre section 11. Centre section 11 has a generally planar upper receiving surface and a generally planar lower surface generally parallel to the upper surface and adapted to adjoin another surface, e.g., a patient 95 support. Centre section 11 has a plurality of apertures 12 which render the centre section 11 stretchable in at least one, and preferably two, directions. Preferably, centre section 11 is constructed of a webbed or netting material, e.g., of

100 a bi-stretch polyethylene mesh material.

Fastening means 13 are shown distributed over the upper surface of centre section 11. Any suitable fastening means (as discussed above with respect to fastening means 7) may be employed. Fastening

105 means 13 are constructed to co-operate with and engage in a fastening manner a complementary fastening means (not shown) on the bottom cladding of first section 2 of sleeping surface assembly 1. The lower surface of centre section 11

110 (and of extending sections 14) is constructed of a low-friction material, i.e., a material having a coefficient of friction sufficiently low enough to permit the patient transfer device of the present invention to be readily moved from one patient 115 support to another.

Patient transfer device 10 also comprises at least one, and preferably two, extending sections 14. This section or sections is adjacent to one of the longer edges of the generally rectangular centre section

120 and is movably attached thereto at 15. The said extending section or sections 14 is capable of movement relative to the centre section 11. Preferably, the extending sections 14 are hingedly attached to the centre section 11 and capable of

125 rotation about an axis consisting of the said edge adjoining the centre and extending sections 11 and 14. Figures 1 and 2 show centre section 11 and extending section 14 in horizontal relation. Figure 4 shows an extending section 14 rotated into a

generally perpendicular position relative to centre section 11.

Extending sections 14 may be constructed of any suitable material so long as the material provides sufficient strength to facilitate patient transfer. Preferably, extending sections 14 are constructed of linear polyethylene.

It is contemplated that patient transfer device 10 also comprises means for gripping the transfer device to impart movement thereto. Gripping means 14 may preferably be handled integral to or attached to extending section 14. Alternatively, apertures could be provided in extending section 14 to serve as gripping means. Also alternatively, it is contemplated that the gripping means may be integral to or attached to centre portion 11. One such embodiment is shown in Figure 1 at 17. In this embodiment, a minor portion of centre section 11 is constructed of a solid material, e.g., solid linear polyethylene. Additional gripping means (not shown) may be provided which may be removably attached to the transfer device. For example, units running along the length of the transfer device may be attached for patient movement. In this matter, movement of patients over extended distances is facilitated.

Extending sections 14 may also be provided with cut-out portions or notches 18 located along the length thereof. These cut-out portions or notches 30 may be designed to co-operate with protrusions on patient supports, e.g., with side rail bars on a stretcher, to permit relative movement. This is discussed in more detail in connection with Figure 4.

Centre section 11 and extending sections 14 are movably attached at 15. This joining surface or joint may be constructed of any suitable material. Preferably, the joint or hinge 15 is constructed of cotton or canvas piping which is stitched to centre section 11 and extending section 14 or is 40 constructed of plastic, e.g., polyethylene, and is integral or attached to said adjacent sections 11 and 14. Preferably joint or hinge 15 extends the entire length of transfer device 10.

It is generally contemplated that the materials of 45 construction of the present invention may be fire-retardant, or may exhibit any other physical properties generally desirable to a hospital or other patient care environment.

While it is preferred that the patient transfer 50 device of the present invention be employed in combination with the improved sleeping surface assembly of the present invention, it is also contemplated that the novel transfer device may be employed generally with any sleeping surface or 55 mattress sufficiently lightweight enough to facilitate ready patient transfer.

Figures 3A and 3B depict the novel sleeping 60 surface and patient transfer device of the present invention used or employed in combination, to permit ready transfer of a patient from a patient support (not shown), e.g., from a patient bed, to a wheeled stretcher 19. The sleeping surface assembly of the present invention covered with a contoured sheet is shown at 20. The patient is 65 readily transferred from the patient support to the

wheeled stretcher 19 by the force of a single attendant employing gripping handles 16 and pulling the patient and sleeping surface onto the stretcher without inserting a transfer surface or otherwise disturbing the patient.

Figure 4 depicts a patient who has been transferred to a wheeled stretcher 19. The extending sections 14 of transfer device 10 are shown in a generally vertical orientation and notches 18 are 70 located to co-operate with side rail 21 to permit siderail 21 to be raised into a patient-securing position. The portions of covered flexible sleeping surface 20 which were adjacent to extending section 18 when horizontal are now in a bent-up orientation 75 whereby additional padding and protection are provided to the patient. With extending sections 14 rotated into a vertically downward position and with covered sleeping surface 20 bent upward as shown, the effective combination sleeping surface/transfer 80 device width has been reduced to about the effective stretcher width. In a preferred embodiment of the present invention, said stretcher width is about twenty-four inches (24").

In Figure 5, the combination sleeping surface 90 assembly and patient transfer device of the present invention are depicted in further combination with a variety of life support means. To reduce the number of hospital personnel required to transfer a patient and to provide additional physical control of life 95 support means during transfer (e.g., to prevent life support means from uncontrolled movement during transfer or to provide additional space in limited areas such as elevators), the present invention contemplates the combination of the patient transfer device of the present invention as described above with the sleeping surface assembly of the present invention (or another sleeping surface), and at least one life support means.

It is contemplated that the at least one life support 100 means can be attached or mounted either directly on the sleeping surface assembly or patient transfer device (not shown), or on a support means attached or mounted on the sleeping surface assembly. The at least one life support means can be attached

105 directly to the sleeping surface assembly by any convenient means. The support means contemplated can be suitable modules or shells 22 a, b. Any such module or shell is adapted to be removably attached to the sleeping surface 110 assembly, to the transfer device or to the combination thereof. Module 22a comprises an upper surface configured to hold or support one or more life support means. For example, indentation 23 is configured to support syringe pumps 24.

115 Indentation 25 is configured to support life pack unit 26. Lower surface 27 of module 22a is joined to upper section 23, 25 by vertical member 28 forming a unitary module or shell. Module 22a is secured to the sleeping surface assembly by inserting locking 120 means 29 into apertures 30 and turning the locking means. Any suitable locking means may be employed. Module 22a is placed onto the sleeping surface assembly in a manner such that the upper portion thereof rests on the sleeping surface

125 130 assembly in the area generally outlined by dot/

dashed line 31. Module 22a is configured such that a patient's head may be placed generally in the area 32.

A similar module 22b may be employed adjacent

- 5 the patient's foot or leg section and said module rests on the sleeping surface assembly in the area generally outlined by dot/dashed line 33. Module 22b is configured such that a patient's feet or legs may be placed generally in the areas 34a, b. Module
- 10 22b is configured in a manner similar to module 22a, and is attached to the sleeping surface assembly in a similar manner to module 22a. Module 22b may be configured to hold, e.g., such life support means as drainage collection devices 35, oxygen tank 36, pump/controllers 37, vacuum pump 38 and intra-venous (i.v.) containers 39.

Figure 6 depicts a hospital bed 40 in connection with which the improved sleeping surface and patient transfer device of the present invention may be employed. The bed is preferably of the type disclosed in copending Application No. 06/454,000, filed December 28, 1982, in that a plurality of lever-type force distributing assemblies 41 are provided for supporting the patient on cross-slats 42, the disclosure of which is incorporated herein by reference. Each assembly 41 includes a pair of transversely spaced lever modules 43 (only one lever module 43 of each assembly 41 being depicted in Figure 6). Each lever module includes a first lever 44 swingable about a transversely extending first axis 45 disposed intermediate the ends of the first lever, and a pair of second levers 46 pivotably mounted on the first lever at opposite sides of the first axis 45. Additionally, four third levers 47 are pivotably mounted at the ends of the second levers 46. Slats 42 are pivotably mounted at the ends of the third levers. Such a force-distributing arrangement provides a high degree of comfort for the patient, so there is no need to employ a thick mattress. Rather, a relatively thin and light-weight foam pad can be employed instead.

The bed depicted in Figure 6 comprises a frame and a plurality of support assemblies mounted on said frame and spaced apart in the fore-aft direction of said bed. Each support assembly comprises a plurality of elongate support elements extending transversely of said fore-aft direction and spaced apart in said fore-aft direction, and a pair of transversely spaced lever modules carrying

50 opposite end of said transverse support elements. Each lever module comprises a first lever swingable about a transversely extending first axis disposed intermediate its ends, and a pair of second levers mounted on said first lever on opposite sides of said first axis. Each of said second levers is swingable relative to said first lever about a transversely extending second axis disposed intermediate its ends. The first and second levers of each lever module of said pair of modules are swingable 55 relative to the corresponding first and second levers, respectively, of the other lever module of said pair.

The frame includes a stationary seat section, a head section and a thigh section articulatedly 60 connected to opposite ends of the seat section, and

a leg section articulatedly connected to said thigh section. Means are provided for articulating the head, thigh and leg sections relative to the seat section. The plurality of support assemblies are

- 70 mounted on said head, thigh, and leg sections. Each support assembly comprises a plurality of slats extending transversely of the fore-aft direction of the bed, and a pair of transversely spaced lever modules carrying opposite ends of said slats. Each
- 75 lever module comprises a first lever pivotable about a transversely extending first axis disposed intermediate its ends and a pair of second levers mounted on said first lever on opposite sides of said first axis. Each of the second levers is pivotable
- 80 relative to said first lever about a transversely extending second axis disposed intermediate its ends. A pair of third levers is mounted on each of the second levers on opposite sides of the second axis. Each of the third levers is pivotable relative to
- 85 the second levers about a transversely extending third axis disposed intermediate its ends. Two of the slats are mounted on each of the third levers. Each slat is pivotable relative to said third levers about a transversely extending fourth axis. The first, second,
- 90 and third levers of each lever module of the pair of modules are rotatable relative to the corresponding first, second, and third levers, respectively, of the other lever module of the pair of modules.

When the combination of the sleeping surface

- 95 assembly and patient transfer device of the present invention are employed in connection with a bed as shown in Fig. 6, a unique suitable hospital bed unit is created. Centre section 11 of transfer device 10 is sufficiently flexible or stretchable to provide shifts
- 100 or changes in patient weight distribution to be accommodated for by adjustments in said pressure-distributing hospital bed. When, e.g., a solid polyethylene sheet is substituted for the polyethylene webbing 21, shifts or changes in
- 105 patient weight distribution are not adequately accommodated for by said hospital bed. Further, since the cross-slats are continuous along their lengths for about the entire bed width in generally the same direction in which the transfer device/
- 110 sleeping surface combination is moved, smooth transfer of patients is permitted without any interference from the bed surface.

Although the present invention has been described in connection with preferred

- 115 embodiments thereof, it will be appreciated by those skilled in the art that additions, modification, substitutions and deletions not specifically described may be made without departing from the spirit and scope of the invention as defined in the
- 120 appended claims.

CLAIMS

1. A sleeping surface assembly having generally rectangular top and bottom surfaces and a generally uniform depth and capable of being readily transferred from one patient support to another comprising:
- (a) a first unitary flexible section adapted to be placed over a patient support, said first section comprising a head portion, a foot portion and a

central portion, said head and foot portions having a depth sufficiently thin enough and being constructed of a material sufficiently lightweight enough to permit said sleeping surface assembly to be readily transferred from one patient support to another and having a depth substantially greater than the depth of said central portion;

(b) a second unitary flexible section constructed of a material capable of permitting gases to flow through said second section to and from the upper surface thereof and capable of permitting liquids on the upper surface thereof to pass in a generally downward direction toward the bottom surface thereof, said second unitary section being adapted to be readily placed above and adjacent to the central portion of said first section and removed therefrom and having a depth sufficient to provide said sleeping surface assembly with a generally uniform depth.

20 2. A sleeping surface assembly as claimed in claim 1, in which said central portion of said first section and said second section extend for the entire width of said sleeping surface assembly.

3. A sleeping surface assembly as claimed in claim 1, in which said head and foot portions of said first section comprise polyurethane foam padding encased in a liquid-impervious plastic cladding and wherein said second section comprises foam.

4. A sleeping surface assembly as claimed in claim 3, in which said central portion of said first section is contiguous to and an integral part of the bottom surface of said cladding and wherein said second section comprises reticulated, open-celled polyurethane foam.

35 5. A sleeping surface assembly as claimed in claim 1, in which said second section comprises a disposable material.

6. A sleeping surface assembly as claimed in claim 1, in which fastening means are provided for securing said second section to the central portion of said first section and wherein said sleeping surface assembly is covered with a fitted sheet.

7. A patient transfer device comprising:

(a) a generally rectangular plastic centre section having a generally planar upper receiving surface, a generally planar lower surface generally parallel to said upper surface and adapted to adjoin a patient support, said lower surface having a coefficient of friction sufficiently low enough to permit said patient transfer device to be readily moved from said patient support, and said centre section having a plurality of apertures therein rendering said centre section stretchable in at least one direction;

(b) at least one laterally extending section which is detachably secured to one of the longer edges of said generally rectangular centre section, so as to be capable of movement relative thereto; and

(c) means for gripping said transfer device to impart movement thereto.

60 8. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

9. A transfer device as claimed in claim 7, comprising two laterally extending sections, one being attached to each longer edge of said centre section, each laterally extending section being formed from linear polyethylene.

10. A transfer device as claimed in claim 9, in which each said laterally extending section is hingedly attached to said centre section substantially along the entire length of the transfer device, so as to be capable of rotation about an axis consisting of the said edge adjoining the centre section and the laterally extending section.

70 11. A transfer device as claimed in claim 10, in which said laterally extending sections have one or more notches designed to co-operate with protrusions on a patient support to permit relative movement of said laterally extending sections and said protrusions.

12. A transfer device as claimed in claim 10, in which said means for gripping said transfer device comprises one or more handles integral with each of said laterally extending sections.

80 13. A transfer device as claimed in claim 10, in which said means for gripping said transfer device comprises one or more handles attached to each of said laterally extending sections.

14. A transfer device as claimed in claim 10, in which said means for gripping said transfer device comprises one or more handles attached to said centre portion and wherein a minor portion of said centre section including said one or more handles is constructed of a solid material.

90 15. A transfer device as claimed in claim 7, in combination with a generally rectangular sleeping surface assembly being sufficiently lightweight enough to facilitate ready patient transfer.

16. A sleeping surface assembly in combination with a patient transfer device, said sleeping surface assembly having generally rectangular top and bottom surfaces and a generally uniform depth and being capable of being readily transferred from one patient support to another and comprising:

(a) a first unitary flexible section adapted to be placed over a patient support, said first section comprising a head portion, a foot portion and a central portion, said head and foot portions having a depth sufficiently thin enough and being constructed of a material sufficiently lightweight enough to permit said sleeping surface assembly to be readily transferred from one patient support to another and having a depth substantially greater than the depth of said central portion;

100 (b) a second unitary flexible section constructed of a material capable of permitting gases to flow through said second section to and from the upper surface thereof and capable of permitting liquids on the upper surface thereof to pass in a generally downward direction toward the bottom surface thereof, said second unitary section being adapted to be readily placed above and adjacent to the central portion of said first section and removed therefrom and having a depth sufficient to provide said improved sleeping surface with a generally uniform depth;

105 (c) means for gripping said transfer device to impart movement thereto.

110 11. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

120 12. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

125 13. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

140 14. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

150 15. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

160 16. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

170 17. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

180 18. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

190 19. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

200 20. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

210 21. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

220 22. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

230 23. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

240 24. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

250 25. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

260 26. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

270 27. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

280 28. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

290 29. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

300 30. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

310 31. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

320 32. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

330 33. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

340 34. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

350 35. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

360 36. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

370 37. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

380 38. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

390 39. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

400 40. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

410 41. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

420 42. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

430 43. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

440 44. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

450 45. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

460 46. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

470 47. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

480 48. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

490 49. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

500 50. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

510 51. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

520 52. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

530 53. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

540 54. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

550 55. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

560 56. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

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580 58. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

590 59. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

600 60. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

610 61. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

620 62. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

630 63. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

640 64. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.

650 65. A transfer device as claimed in claim 7, in which said plurality of apertures comprise a polyethylene mesh material stretchable in two directions.